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SOCIAL SCIENCE ASSOCIATION

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ON THE RELATIVE INFLUENCE OF CITY AND COUNTRY LIFE, ON MORALITY, HEALTH, FECUNDITY, LONGEVITY AND MORTALITY.

BY JOHN STOCKTON-HOUGH, M. D.

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WITH THE ANNUAL REPORT FOR 1873.

PAPERS READ BEFORE THE ASSOCIATION.

The following is a list of the Papers read before the Association:

1871. *Compulsory Education.* By Lorin Blodget.
Arbitration as a Remedy for Strikes. By Eckley B. Coxe.
The Revised Statutes of Pennsylvania. By R. C. McMurtrie.
Local Taxation. By Thomas Cochran.
Infant Mortality. By Dr. J. S. Parry.

1872. *Statute Law and Common Law*, and the Proposed Revision in Pennsylvania. By E. Spencer Miller.
Apprenticeship. By James S. Whitney.
The Proposed Amendments to the Constitution of Pennsylvania. By Francis Jordan.
Vaccination. By Dr. J. S. Parry.
The Census. By Lorin Blodget.

1873. *The Tax System of Pennsylvania.* By Cyrus Elder.
The Work of the Constitutional Convention. By A. Sydney Biddle
What shall Philadelphia do with its Paupers? By Dr. Ray.
Proportional Representation. By S. Dana Horton.

1874. *Statistics Relating to the Births, Deaths, Marriages, etc., in Philadelphia.* By John Stockton-Hough, M. D.
On the Value of Original Scientific Research. By W. S. W. Ruschenberger.
On the Relative Influence of City and Country Life, on Morality, Health, Fecundity, Longevity and Mortality. By John Stockton-Hough, M. D.

ON THE RELATIVE INFLUENCE OF CITY AND COUNTRY LIFE, ON MORALITY, HEALTH, FECUNDITY, LONGEVITY, AND MORTALITY.

—Pericula mille saevae urbis.

God made the country, and man made the town.—*Cowper's Task, p.* 28.

SOCIAL Science Associations find their fields of usefulness in the consideration and correction of those abuses which grow out of existing social systems. Social systems spring from the convenience, indolence, sympathy, sociability, and the rivalrous vanity of human nature. Sociability owes its origin to civilization, and civilization is formed and fostered in cities. Indeed, civilizing is only citizenizing or conforming to, and adopting the manners, habits and peculiar life in cities.

"Aristotle was wiser when he fixed upon sociability as an ultimate quality of human nature, instead of making it, as Rousseau and so many others have done, the conclusion of an unimpeachable train of syllogistic reasoning." Morelly, the cotemporary of Rousseau, says that man "though composed of intelligent parts generally operates independently of his reason; his deliberations are forestalled, and only leave it to look on while sentiment does the work."

The great ultimate aim of human nature is sociability. Every man looks forward to a time when he will have more leisure to give to his friends, to enjoy with them interchange of thought and hospitality. As man emerges more and more from a savage or semi-barbarous state (state of nature), he first acquires property, place, ease; then cordiality, hospitality, and sociability; and to facilitate all these, he must needs congregate with his fellows; hence arise towns and cities.

In our present theme we have to do with the ill effects on health, mortality, and longevity, arising from prolonged or continuous life in cities. And these effects can best be shown and appreciated by comparison with the much more favorable results of life in the country.

On these several conditions hang the fates of principalities and powers. Well and truly has the Roman poet said: "*Pericula mille saevae urbis*"—a thousand perils beset the great city,—and these words have as much weight and meaning to-day as they had centuries ago.

On the other hand, the unsparing praises of life in the country, with its attendant happiness, healthfulness, and purity, found in the poems of Virgil, Horace,[1] and Cowper,[2] are not less worthy of our careful consideration and thoughtful reflection.

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[1] This used to be my wish: a bit of land,
A house and garden with a spring at hand,
And just a little wood. The gods have crowned
My humble vows; I prosper and abound.
Hoc erat in votis—Sat. VI. B. II.
* * * * * * * *
The farmer dragged to town on business, swears
That only citizens are free from cares.—*B. I. Sat. I.*
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And courts and levees, town-bred mortals' ills,
Bring fevers on and break the seals of wills.
Qumque dies tibi pollicitus.
John Connington's Horace, 12° Lond. 1872.

[2] Strange! there should be found,
Who self-imprisoned in their proud saloons,
Renounce the odors of the open field
For the unscented fictions of the loom;
Who, satisfied with only pencilled scenes,
Prefer to the performance of a God.—*The Sofa.*
* * * * * * *

The writer in the course of his statistical researches has so frequently observed the ill effects of city life, that he was lead to inquire whether the noticeable decline in health, fecundity, and longevity of the human race, and of the American people in particular, were not due to the too great crowding into cities; and he finds from an investigation of the subject that he is warranted in his belief.

That there is a well marked and fully appreciated decline in the health, fecundity, and longevity of the people of the United States, we have only to refer to the investigations of those of our fraternity who have given the subject much thoughtful attention, and are undoubtedly well able to judge. Among these, I may mention Dr. Nathan Allen of Lowell, Massachusetts; Dr. J. M. Toner of Washington, D. C; Dr. John S. Parry[3] of Philadelphia, and the late lamented Dr. Hunt,[4] President of the London Anthropological society.

God made the country, and man made the town,
What wonder then that health and virtue, gifts
That can alone make sweet the bitter draught
That life holds out to all, should most abound,
And least be threatened in the fields and groves.—*The Task.*

But though true worth and virtue in the wild,
And genial soil of cultivated life
Thrive most, and may perhaps thrive only there,
Yet not in cities oft; in proud, and gay,
And gain devoted cities. Thither flow,
As to a common and most noisome sewer,
The dregs and feculence of every land.
In cities foul example on most minds
Begets its likeness. Rank abundance breeds,
In gross and pamper'd cities, sloth, and lust,
And wantonness, and gluttonous excess.
In cities vice is hidden with most ease,
Or seen with least reproach; and virtue, taught
By frequent lapse, can hope no triumph there
Beyond the achievement of successful flight.—*Task.*

[3] *John S. Parry, M. D.*, "Infant mortality and the necessity of a foundling hospital in Philadelphia." Papers of the Social Science Association of Philadelphia, 1871, pp. 28. out of *Penn Monthly*,—1871.

[4] *James Hunt, Ph.D.* The influence of the climate of North America on the physical and psychical constitution. Reviewed in No. 1, *Anthropological Review*, London, May, 1863, p. 18.

These men are all habitually careful, thoughtful, and moreover, conscientious in the expression of their opinions; and we are forced to accept the weight of their evidence, however humiliating, as regards our future prospects as a nation.

Dr. Parry believes that "it may yet become a serious question, whether the Anglo-Saxon race is adapted for life in this country with its variable climate; and it may yet become a very serious question, whether the American will become a permanent nation, if immigration is cut off, for it is beyond doubt that though our people are not physically weak, the number of children born to native parents is small, and is decreasing every year. This is true not only of those families who have lived in this country for three or four generations, but it is more or less true of the immediate descendants of our Irish and German immigrants." I have shown in my article, "on the effect of nationality of parents on fecundity and proportion of sexes in births,[5] that foreign-born parents have a much higher degree of fecundity than native-born parents, and have as a consequence a larger proportion of male children.

If William Barton were living to-day, he would find his predictions of fertility, longevity, and increase of our people had fallen sadly short of his high hopes, as expressed in a letter to David Rittenhouse, dated March 17th, 1791, "On the probabilites of the duration of human life in the United States of America.[6] He calls attention to the fact of the population having doubled in fifteen years; while at the present time it will take more than twice that length of time to increase the population to the same extent, and this is only 82 years ago.

He attributes this unparalleled increase to the early marriages,[7] virtuous habits, and simple manners of the people. The lack of large cities did not escape his notice, for he compares the unfavorable circumstances connected with city life with the healthful employments of the country.

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5 Philadelphia Medical Times, Dec. 1873.

6 Published in the Transactions of the American Philosophical Society, Vol. iii, pp. 25 to 62, 1*st Series* (*Philadelphia*).

7 William Penn, in a letter to his friends in England, says that there is scarcely a maid of nubile age unmarried in the province of Pennsylvania—need I say how different it is now? How many men and women remain unmarried.—*Watson's Annals of Pennsylvania.*

Barton says that there were 138 deaths to every 100 births in Rome in the beginning of the eighteenth century; in Amsterdam 171 deaths to every 100 births; in Berlin, for the five years ending 1759, 131 deaths to every one hundred births. In London for 26 years, about the same time, 124.92 deaths to every 100 births; in Paris for the 14 years ending 1784, 97 deaths to every 100 births. In the city of Providence, R. I., during the 16 years ending 1870, there were 915 births and 977 deaths of colored people.

With these fearfully high rates of mortality he compares that of places in our own country; among which are Salem, Mass. (1782-3), where there were but 49 deaths to every 100 births; the parish of Higham, Mass., for the 54 years ending 1790, had 1113 deaths, or 49.5 deaths to every 100 births. Of the deceased, 84, or 1 in 13.2, survived 80 years. At Milford, Conn., 1777, of the 239 persons who died, 1 in every 7 was upwards of 70 years of age, and 1 in 13 above 80 years. In Philadelphia, 1789, 1 in 40.8 of the persons deceased as above 80 years of age. In the years 1789-90 there were 49.94 deaths to every 100 births in Philadelphia. In 1789 there were 1536 births and only 872 deaths. From 1861 to 1870 (10 years) there were 164,281 births, and 147,435 deaths, or 89.74 deaths to every 100 births in Philadelphia, which is more than double the proportion of mortality to births for the period above, named 83 years ago. In 1789 there was one birth to every 22 inhabitants; from 1806 to 1820 an annual average of 1 in 22.5; from 1820 to 1831, 1 in 22.6; from 1861 to 1872 only 1 in every 37.3. From 1806 to 1820 there was 1 death to every 47.86 inhabitants, from 1861 to 1870, 1 to every 39.1. The average duration of human life in Philadelphia near the close of the 18th century, was above 28 years, now it is but 24.5 years.[8]

Notwithstanding the fact that the mean average duration of human life has decreased apparently 3.5 years in our city (though in reality more), yet, strange to say, there is one person in every 33 of those dying who attained to 80 years and above, among those dying from 1860 to 1872; while there is but one in every 38

[8] See further in the author's paper on "Statistics Relating to Births, Marriages and Deaths in Philadelphia for the eleven years ending Dec. 31, 1872," *Penn Monthly*, Sept. 1873, pp. 24.

in the period from 1820 to 1830, and only one in every 40.8 for the years 1789 and '90,—above the age of 90, however, there was a larger proportion in the earlier periods than at present.

The fact of there being a larger *proportion* of persons above 80 years of age among the decedents in recent enumerations than among those taken some years previous, has furnished a foundation in fact on which some exceedingly clever men have based erroneous conclusions,—among which I may mention the seeming inference that the *average duration* of human life has increased.

Now this fallacy happens in the following manner, viz.: A certain proportion of those dying in the extreme ages mentioned, are exogenous, having come to the city in late adult or advanced age, and though they contribute to swell the number, and consequently increase the proportion in extreme ages, yet their number is not sufficient to very materially affect, though falsely increasing, the mean average duration of human life, on account of the immense numbers dying in infancy and inferior ages. The reason that there was a larger proportion among the decedents of extreme ages in the decade from 1860 to 1871 than the decade between 1820–30, was because there was a larger proportion of persons of advanced ages coming into the city in the first-named decade than in the last. In the ten years from 1860 to 1870, 91,674 persons, strangers from other places, took up their residence in Philadelphia, and by far the greater part of them were adults. This paradoxical contradiction is repeated in respect to the poor of cities, among whom, though the mortality be greater and the average duration of life less than among the rich, yet they have a larger proportion of decedents of extreme ages than the latter class.

In this connection, I cannot do better than quote the wise conclusion of Mr. George Harris, F. S. A., and vice-president of the Anthropological Institute. After mentioning the fact that the mean average duration of human life had increased from 18 years during the century from 1500 to 1600, to nearly 39 years from 1815 to 1826, he says: "Nevertheless, admitting all this, I must beg to suggest that it is clearly erroneous to contend that the increased average in the duration of human life affords any actual proof of increased longevity. All that it proves is, not that men are longer-lived than they used to be, but that owing

to increased attention to sanitary laws, they are less frequently cut off by diseases resulting from the neglect of sanitary precautions."[9]

This is one of the facts in evidence of the statement made in the beginning—that too many of our people of advanced age retire to cities.[10]

Mr. Bollaert has given out some opinions "On the Past and Present Population of the New World," in the memoirs of the Anthropological Society of London, 1863, pp. 72–119, as also Mr. Walford on the population of the United States, in the London Statistical Society's proceedings, an examination of which, had we the time, would be useful in this connection.

Of the character of the exogenous population of towns, Dr. John Edward Morgan, in his paper on "The Danger of Deterioration of Race," from the too rapid increase of great cities,[11] says: "The country is robbed of a large portion of its productive population; men and women in the prime of their strength, when their chances of life are the most promising, emigrate to the towns, and then a comparison is instituted between the places they have deserted and those to which they have removed.

"The result of all such calculations must needs prove fallaciously favorable to towns."

Of the 101,486 emigrants from the industrial counties to London, 53,495 remain, or 1.4 per cent. Of the 587,143 persons going to London from the agricultural counties, 444,890 remain, forming 9.1 per cent. of the total population. Thus the exogenous population of London consists of persons from the agricultural districts, to the extent of 9.1 per cent., and from the industrial districts, to the extent of 1.4 per cent. of the entire population.

Thus we find that it is not only persons who are in the prime of life, with families in many cases, preferring to remain in the crowded streets of towns, but others from the most vigorous class

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[9]The comparative longevity of animals of different species, and of man etc. *Journal of the Anthropological Institute*, London, April 1872, pp. 68–78, p. 78

[10]Benj. Franklin, in 1785 (?), published an article on the "Augmentation of the Human Species," in the *Gentlemen's Magazine*, but I was not able to find it in the volumes for 1785, owing perhaps to wrong date.

[11]Published in the Transactions of the National Association for the Promotion of Social Science, held at Sheffield, (pp. 427–440.)

bring their delicate infants into them without fear of harm—and the acquisition of any considerable competence is a never-failing signal for city life, in those even who have been reared and made their fortunes in the country.

These changes of residence from city to country and the reverse, would seem to contribute to increase the mortality of both, if we may believe Dr. Nott, who says: "The citizen of the town is fully acclimated to its atmosphere, but cannot spend a single night in the country without serious risk of life; nor can the squalid, liver-stricken countryman come into the city during the prevalence of yellow fever, without danger of dying of black vomit."

The fault of over-crowding cities with idlers is a *mere matter of fashion.* In America it is the fashion to live in cities. In England it is equally the fashion to live in the country. Yet there is a reason for this fashion—and it is principally a matter of money. We Americans have not wealth enough to live in the country—though it may seem paradoxical to say that it costs more to live in the country than in the city—but I mean to live fashionably—which must always include a town house. In short, the people in America are utilitarians as yet, are too busy in making money, and have no time to do visiting at distances—and as a consequence country people would have no social life—their wives would have but one man to dress for, their daughters would languish in listless maidenhood, and their sons grow dull with *ennui.*

After a time, with more wealth, and when land is scarce and dear, it will become fashionable to have landed estates as the most solid and satisfactory investments. Thus, if not too late, we may reasonably hope that our citizens will be aroused to their interests and that of their posterity.

CONCERNING THE HEALTH OF INHABITANTS OF CITIES.

Sir John Sinclair[12] in his exhaustive work on "The Code of Health and Longevity," says: "The constitution of the generality of citizens may be denominated weak, irritable, and easily susceptible of diseased action; and when men are crowded together, to a cer-

[12]Sir John Sinclair, Bart: The code of Health and Longevity; etc., etc., etc. In iv vols 8 vo. Edinburgh, 1807. Pp. 2271.

tain degree, they engender diseases, not only fatal to themselves, but which are contagious, and therefore destructive to others."

He concludes that residence in cities develops a nervous temperament, and when he sat in Parliament, counseled his countrymen to engage in agricultural pursuits, with a view of counteracting this tendency to a prevalence of the nervous temperament in the English people.

A French physiologist has said that the lymphatic temperament indicates or accompanies physical degeneracy, and ought therefore to prevail among old families in cities—and it may be that this will, some day, serve as an indication of ancestral antiquity and unappreciated excellence.

As a further evidence of more rapid physical degeneracy in great cities than in country districts, the *decline in stature* is a proof. Dr. J. Adams Allen[13] says: "In the United States the average height of persons bred and living in large towns and cities, is something less than that of those living in rural districts." This fact is so noticeable that it need not be attested by actual measurement.

Lord Bacon[14] says: "The country life, also is well fitted for long life; it is much abroad and in the open air; it is not slothful, but ever in employment; it is without care and envy."

Dr. Price says:[15] "I have represented particularly the great difference between the duration of human life in towns and in country districts; and from the facts I have recited it appears, that the further we go from the artificial and irregular modes of living in great cities, the fewer number of mankind die in the *first* stages of life, and the more in the *last* stages. * * * * The greatest part of the black catalogue of diseases which ravage human life is the offspring of the tenderness, the luxury, and the corruptions introduced by the vices and false refinements of civil society. That delicacy which is injured by every breath of air, and that rottenness of constitution which is the effect of indolence, intemperance, and debaucheries, were never intended by the author of nature; and it is impossible, that they should not lay the foundation of numberless sufferings, and terminate in premature and miserable death."

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[13]Medical Examinations for Life Insurance, Chicago, 1867. 8 vo.
[14]On Life and Death. Part 49.
[15]Reversionary Payments. p. 371.

MORTALITY OF CITIES.

I have stated that the mortality of cities was far greater than in the rural districts, and small villages.

The duration of human life is shorter because of this great mortality. Infants and the very aged suffer most from the ill effects of city life.

In New York city, of the 365,508 deaths reported during the 49 years ending 1853, 50.49 per cent, were of children under five years of age. In Chicago, from 1843 to 1869, there were 63,538 deaths, 51.24 per cent, of which were of infants under five years of age. Mr. Martin a member of the Health of Towns Commission, says it is reckoned that out of 1000 births, 221 only die under five years of age in agricultural districts, while no fewer than 385 die annually, under the same age, in closely built up towns.

In Philadelphia, I have found that 28.5 per cent. of the total mortality was from deaths of infants 1 year and under; 8.5 from 1 to 2 years; 8.3 per cent. from 2 to 5 years of age; or 45.3 per cent. were under 5 years of age. During the twenty years ending 1827, only 39.8 per cent. of the total mortality was from children under 5 years of age,—yet we are often told that the health of cities is improving and human life is increased.

Dr. Toner in his excellent paper[16] on "Free Parks and Camping Grounds; or Sanitariums for the Children of Cities," says: "The healthfulness of the country as compared with the cities, is in such marked contrast in this respect, that instead of the percentage of all deaths being greater under 5 years of age, (than of those dying above 5 years) as in cities, the percentage is largely reversed; and even when the whole annual mortality of the United States is considered in the aggregate, the small mortality among children in the rural districts is sufficient to overcome the unfavorable reports of cities." Mortality of children under five years, in Sheffield, England, 1863, 61 per cent. of total mortality; in 1864, 53 per cent.

In conclusion he states it as his belief "that a considerable percentage of the infantile mortality of cities could, under favorable circumstances, be prevented, is the settled conviction, not only of physicians, but of the parents of these innocent victims."

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[16] *Northwestern Medical and Surgical Journal*, Nov. 1872.

The most trying time for children in cities, is during the intensely hot weather of the summer months, as may be seen from an examination of Dr. Russell's comments[17] on the dreadful mortality of children in New York city, for the week ending July 6, 1872. During this week there were 1591 deaths in all, 229 more than ever before registered, 1007 or 63.2 per cent. of these, were children under 5 years of age; and 45 of persons above 70 years of age. Of 1007 infants under 5 years of age, who fell victims to diarrhœa, 499 were under 1 year, and 604 under 2 years.

The total mortality from diarrhœa, was 653, or 41 per cent. of the deaths from all causes. Of the 2,351 deaths from all causes in the month of July, 140 were of diarrhœal affections, and 102 of diseases of the nervous system.

Intense heat, bad food, and foul air appear to be the principal predisposing causes to this extraordinary mortality. The "Free Camping Grounds and Sanitariums" recommended by Dr. Toner are assuredly worthy of consideration in this connection, as offering a means of obviating a large part of this extraordinary mortality.

That this high rate of infant mortality is not unavoidable, we have a practical proof in the result of the efforts of the Paris Society for the Protection of Infant Life. Out of the 1,682 infants committed to its care during the past year, the society only lost sixty, or less than four per cent. while the mortality among infants put out to nurse in the provinces is about sixty per cent.

Diseases of the lungs are twice as fatal in great cities as in the country; diseases of the nervous system, 5½ to 1; of the digestive system, 2½ to 1; of children by epidemics, fourfold; and of convulsions, tenfold.

Dr. Farr asks whether this excessive mortality of cities is inevitable.

Some Sanitary Reformers, and among them, Mr. Chadwick believes that cities can be made as healthful as rural districts, but this is evidently beyond a possibility; and Mr. G. L. Saunders, in his paper[18] on "The Death-rate of Rural and Urban Districts."

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[17] *New York Medical Record*, p. 333. 1872.

[18] Transactions of the National (British) Association for the Promotion of Social Science, 1865, p. 452—59,

very wisely says: "The loss of life must be—until perhaps the millenium—considerably greater in urban than in the rural districts."

Lord Stanley in his address before the National Association for the Promotion of Social Science, 1857, pointed out that in 134 thickly inhabited districts where the higher rate of cholera mortality occurred, the population was 915 to the square mile; in 404 districts having a lower mortality, there were but 235 inhabitants to a square mile; in the remaining 85 districts there were no cholera deaths, and there were but 122 inhabitants to the square mile.

According to the Registrar-General's Report, of the inhabitants of England and Wales, 8,250,000 persons live on 2,150,000 acres, constituting the urban population, or 3.8 persons to the acre. Among these the death-rate was 25 per 1000 living. The remaining 9,750,000 live on 350,000,000 acres, or 1 person to every 35 acres, these constitute the rural population, and have a death-rate of 17 per 1000, giving a difference of 8 per 1000 in favor of the country.

In ten crowded cities there are 1,165,530 inhabitants living on 33,551 acres, or 34 per acre; with a death rate of 28 per 1000 living.

In twelve smaller places, 238,595 acres are occupied by 128,934 persons, or 1.8 acres to each person, with a death-rate of 21 per 1000.

In sixteen still smaller places, 217,282 persons live on 1,214,977 acres, or 5.5 acres to each person, with a death-rate of only 16 per 1,000.

In one district of Northumberland, 1 person to 10 acres, with a death rate of 15 to 1000. In another district of this county there were 21.5 acres to each person, with a death rate of 14.02 per 1000.

In Liverpool there are 108 inhabitants to the acre, with a death-rate of 36 per 1000.

In London there are 42 persons to each acre, varying from 7 to 429.

In the fourth ward of New York city there are 183,000 persons to the square mile.

These facts point to over-crowding in cities as a cause of the excessive mortality occuring in them, though there would appear to be more definite causes accompaning this, which seem to be

operative; for Dr. Robert Martin, after careful investigation, believes the death-rate of Liverpool was raised from 25 in 1000 in 1860, to 50 in 1000 in 1866, on account of the evils attending intemperance, owing to great development of the licensing system.

Dr. Morgan attributes the greater mortality of cities than rural districts, to foul air, constitutional syphilis and intemperance. To these might be added, irregular hours, want of exercise, sensual appetites gratified; and unhealthy and extra-hazardous occupations.

The death-rate among persons under 15 years, is, in

Liverpool	48.5 in 1000 living.	Wiltshire	18.0 in 100 living.
Manchester	42.5 " " "	Berks, Dorset and Westminster	
Birmingham	39.0 " " "		18.5 in 1000 living.
London	33.0 " " "		

Berks, Dorset, and Westminster 18 5 in 1000 living.
Of all ages in 27 agricultural districts (1861-62) 21.4 in 1000 living.
" " " the 4 chief cities 40.7 " " "

"To live in the country and in small towns, is favorable to longevity; to live in great towns is unfavorable. In great cities, from 1 in 25 to 1 in 30 die every year; in the country, from 1 in 40 to 1 in 50. Mortality among children is in particular much increased by living in great cities, so that one-half of those who are born, die generally before the third year; whereas, in the country, the half are not carried off until the twentieth or thirtieth. The smallest degree of human mortality is 1 in 69 annually; and this proportion is found only here and there among country people."[19]

"According to the Registrar-General's report on the mortality of children, nearly one-half of all that are born alive die before the end of the *fifth* year in Liverpool; while the same number in London live to the age of thirty-three; and in the county of Surrey to fifty. In 1845, nearly one-half of all the children born in Birmingham, died under *five* years of age; the entire half in Manchester died in the same period; and more than one-half in Liverpool. In London the proportion was between one-half and one-third; and in Wales less than one-third."[20]

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[19]Christopher William Hufeland: Art of Prolonging Life. Edited by E. Wilson. Boston. 1854. pp. 102.

[20]Ibid. Note by Erasmus Wilson. pp. 103.

Sussmilch[21] supposed that the mortality of the country was 1 in 35, 1 in 49, 1 in 50, and even 1 in 100. He estimates small cities 1 in 25 to 1 in 28; and of great cities 1 in 24 to 1 in 20. Graunt[22] estimated that the mortality in the city exceeded that in the country by 1 in 12. Friedlander calls attention to the fact, that many of those whose names are inscribed on the roll of births in the country and small villages, often augment the bills of mortality in great cities, thus favoring the city mortality by the acquisition of inhabitants who have passed the critical period of infancy in the country. Price observed that a fourth of those who die in London were not born there, and that it took ten thousand individuals from other places to cover the deficit between the births and deaths.

LONGEVITY.

The lower mortality of rural districts would indicate a greater longevity, which is always realized, where any calculations have been made.

The mean average duration of life in the eastern districts of London was from 25 to 30 years, in the northern and western districts from 40 to 50 years.

In 1,000 deaths in the country districts of England, 202 persons attained the age of seventy years. In Liverpool but 90 attained to the same age, and this, too, in the face of the fact of the larger part of the exogenous population coming into the city after the dangers incident to infancy are past. The average age at death in Rutlandshire was 38 years; in Liverpool, 27 years.

Taking the same population, it has been shown by the Registrar-General that in four years a greater number died in town districts than in country districts, by 99,752.

Out of 750,322 deaths in London from 1728 to 1758 (thirty years), only 242 persons survived the age of 100 years.

In agricultural districts 20.7 in every 100 living attain 45 years; in the four great cities, only 17.5.

The average age at death in the State of Rhode Island[23] from 1858 to 1870 (including Providence), was 31.45 years. In Providence[24], the largest city, during the fifteen years ending 1870,

[21]Dict. Des. Sci. Med. Art. Mortalité v, 34. pp. 375.

[22]Natural and Political Observations on the Bills of Mortalité. London. 1759. 4to.

[23]Dr. E. T. Caswell's Rept. 1871, p. 70. [24]Dr. Edw. M. Snow's Rept. 1870, p. 28.

there were 16,203 deaths, and the average age of decedents was 27.09 years; leaving a difference of 4.36 years in favor of the rural districts.

The unhealthfulness of various callings in towns as compared with the country may be inferred from the following from Dr. Morgan's paper.

Class.	London. Average age at death.	Class.	Hertfordshire. Average age at death.
Gentry	44	Gentry	45
Tradesmen	25	Farmers	47
Mechanics	22	Laborers	39
Average	27	Average	40

Dr. Price[25] says the expectation of a child just born in the parish of the Holy Cross, near Shrewsbury, is 33.9 years; in Northamptonshire, 25½; in Norwich, 23¾,; in London, 18. In Holy Cross parish one in eleven die at eighty years and upwards; in Northamptonshire, one in twenty-two; in Norwich, one in twenty-seven; in London, one in sixty.

In the United States (1860) there was one death to every 78.32 inhabitants, in 1870 one to every 79.77; while in New York city (1870) there was one death to every 39.3 inhabitants. In Philadelphia, 1861 to 1871, one death to every 39.1 inhabitants. Gen. Walker[26] gives the mean average duration of human life in the United States (1870) at 39¼ years, while in New York and Philadelphia it is only 23 years, or 16 years less.

Mr. Farr, in his first annual report (1839), says that out of 1.000 deaths in England and Wales, 145 had attained seventy years and upwards.

210 in thinly peopled districts of W. Riding of Yorkshire and Durham.

[25]Richard Price, D.D. Observations on Reversionary Payments, Annuities, etc. London: 5th edition, 1792, 8vo.

[26]Gen. Walker, in his address before the American Public Health Association, Nov. 12, 1873, said that he estimated the deficit in the returns of deaths in the census of 1870, at 33 per cent.

198 in Northumberland, Westmoreland and Lancashire.
196 in Norfolk and Suffolk. 192 in Devonshire.
188 in Cornwall. 104 in London and suburbs.
81 in Birmingham. 79 in Leeds.
63 in Liverpool and Manchester.

According to the statements made in in the 5th annual report (1843) of the Registrar-General, of the persons aged from forty to sixty years, there were living in

Exeter,.....13.28 per cent. Liverpool.....14.87 per cent.
Sheffield.....15.50 per cent. Manchester.....15.43 per cent.
Birmingham.....15.15 per cent. Leeds.....15.23 per cent.

In the following four agricultural districts,

Devon.....16.97 per cent. Essex.....16.27 per cent.
Norfolk.....16.50 per cent. Suffolk.....15.98 per cent.

"Can anything," says Dr. Farr, "display the different effects of rural and town life, on longevity, more uniformly, more regularly, or more strikingly?"

It seems to be a universal law, says Dr. Edward Jarvis,[27] that condensation of population lessens the chances of life. The ratio of mortality is greater in the city than the country, and this increases as the people live nearer together in the city. From his admirable paper on "Infant Mortality" we take the following:

The Registrar-General[28] of England gives a table showing the number of deaths in 10,000 living, and average number of people to an acre of land, in each of the six hundred and twenty-three districts of England and Wales.

In the districts which had 100 to 250 persons to the acre, the annual deaths were 262 in 10,000 living.

In those which had 1 to 2 acres to each inhabitant, the deaths were 214 in 10,000. In thirty settled districts, with twelve or more acres for each, the deaths were only 168 in 10,000.

In cities the mortality increased with the crowding of the living, as shown by the reports of deaths in the four places below:

Town.	Living to square mile.	Annual deaths in 10,000 living.
London	50,000	251
Leeds	87,256	272
Manchester	100,000	337
Liverpool	138,000	348

[27] State Board of Health of Massachusetts, Rept., 1873, p 224.
[28] Twenty-fifth report pp. xxxviii to lviii.

The excess of mortality falls in greater proportion on childhood than on maturity.

The deaths in the healthiest districts were 10,604 in 100,000 children under one year. In Westmoreland and North Wales, they were 11,884. In fourteen city districts, 25,858. In Liverpool, 28,005.

The annual deaths under file in the period 1849 to 1853 were, in thirty cities, 338,000, and in healthy country districts 135,478, in the same population in each. As often as 100 died in the healthy country, 250 died in the city, among the same number living.[29]

The life-table, founded upon the most rigid observations, makes the proportion of deaths of children to be 5.29 per cent. for the country, and 13.34 in the city, or as 100 to 252.

The reports of births and deaths of Scotland, make three divisions of the people.

1. Those living on the islands.
2. Those living in the country of the mainland.
3. Those living in the great cities.

During the 14 years reported, the proportion of deaths of children, for every hundred births in each class were:

Divisions	Under one.	Under five.
Islands,	8.05	15.58
Mainland Country,	9.80	18.26
Great Cities,	14.91	30.90

As often as 1000 died on the Islands, 1,217 died on the mainland country, and 1,852 in the cities under one; and 1,172 in the rural, and 1,983 in the city districts under 5.

There are similar differences in France. The deaths in 1861 to 1865, were less than 12 per cent. in two departments; less than 15 per cent. in six; less than 17 per cent. in nine departments, and 39.07 per cent. in Paris, in the same number living under one year.[30]

A chart recently published by Bertillion, in France, shows the different rates of mortality of children under one and under five in each department. In the department of the Seine, which com-

[29]Registrar-General Repts. XXV. p xxvii.

[30]Mouvement de la Population, 1861–65, p. lxvii.

prehends Paris, the rate of infant mortality is 268.6 in 1,000; while seven of the neighboring departments have a mortality from 277 to 359 in 1,000. Dr. Jarvis, explains the apparently favorable mortality of the city, by calling attention to the fact of children being sent into the country and swelling, in this way, the mortality in the latter to the advantage of the former.

In 1863 the Public Administration of Charities, in Paris, had charge of 22,829 infants; 17,759 of these were sent into the country, and there 13,359, or 7.65 per cent. died; 4.397 were retained in the city, and 469, or 10.6 per cent. died.

Dr. Berg the chief of the Royal Statistical Bureau of Sweden says: "The difference between the towns especially the large towns, and rural districts has an important effect on the mortality of children of that country."

Dr. Herz makes the same report of Austria. And records of mortality of other European nations give similar accounts.[31]

"In the least unhealthy rural districts of England, the death-rates of children, in the first year, are not more than one in twelve or fourteen. In the least unhealthy urban districts, there dies one in eight or nine, in the first year. In Manchester, one in five dies, under one, and one-half of all that are born there, are dead, soon after their fifth year. But in Berlin, Prussia, one out of every three dies within the first year, and one half of all that are born there, are dead within two and a-half years after their birth. In 1871, 31,262 children were born, and 10,072, or 32.2 per cent., died within that year."[32]

In New York city[33] in 1871, there died 10,701 children less than two years old, or 39.6 per cent. of the total mortality, the per centage in 1870 having been 40.8 per cent. The mortality of children less than five years of age amounted to 12,791, or 48 per cent. of total mortality.

In Philadelphia, for the years 1870–1–2, the deaths of children under one year constituted 27.77 per cent. of total mortality; under five years 43.66 per cent.[34]

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[31]Journal of the Statistical Society of London, March, 1866.

[32]Edwin Chadwick, in Journal of Society of Arts, London, Dec. 20th, 1872, p 87.

[33]New York Medical Record, Dec. 1, 1873.

[34]Reports of Board of Health, 1872. pp. 20.

In Massachusetts for the ten years, 1860–1870, Dr. Edward Jarvis has tabulated the following facts, in which he compares the infant mortality of Boston with that in thirteen other and smaller cities in the State, and finally with the remainder of the State at large.

	Births.	Deaths under one.	Ratio of deaths under one to births.
Boston,	60,354	11,537	19.11 per cent.
Thirteen other cities,	80,088	13,863	17.30 per cent.
Rest of State,	198,030	24,547	12.39 per cent.

The rate of infant mortality, in comparison with the births, in the thirteen smaller cities (towns) exceeded that of the open country by 39.60 per cent., and that Boston had an excess of 54.23 per cent. Among the same number of children, born in each of these classes of places, as often as 1000 died in the country, 396 died in the smaller cities, and 1,542 in Boston under one year.

Dr. Farr[35] gives the following as the proportion of deaths under five years of age, occuring in London for the years named:

1730 to 1749, ... 74.5 per cent.
1770 to 1789, ... 51.5 per cent.
1851 to 1870, ... 29 8 per cent.

"So great was the rate of infant mortality in London, that an act of Parliament was passed in 1767, ordering that all parish infants should be nursed six years in the country. Before this almost all parish children died in their first six years."[36]

The advantage of the system of nursing in the country, already alluded to as practised in Paris, was shown in this latter place, to have reduced the mortality from 10.6 per cent. to 7.65.

The mortality of great cities is found to be both in this country and in Europe more than twice as great as that of the rural districts; indeed it is fully 2½ times as great, for the cities are counted with the country in those comparisons, thus reducing the difference in their favor, and moreover, the mean average age at death in cities is falsely increased by the fact of the exogenous population of towns having passed the most critical period of their lives in the country.

In England it is found that 50 per cent. of the inhabitants are

[35] In Macculloch's Statisical Account of the British Empire, ii., p. 543.
[36] Price's Annuities. 11., 32.

between the ages of 15 and 45 years, while in the agricultural counties there are but 42 per cent. hence there are 13 per cent. more persons of a marriageable age in cities than in the rural districts. Of these, however, it is probable that a majority are females.

On inquiry into the causes of the greater mortality of cities than rural districts, we find that circumstances connected with poverty are most noticeable, for in Philadelphia during the 10 years ending 1871, I found that there was but one death to 57 inhabitants in the richest ward though not exclusively inhabited by that class, and 1 death in every 42 inhabitants in the next richest ward, while there were but 36.50 inhabitants to every death, in the poorest ward, and there were but 4.86 persons to each family and 5.04 persons to each house, here; while there were 6.23 persons to each family and 7.04 inhabitants to each house in the richest ward.

Villot, in Paris, 1830, found that there was one death to every 42 inhabitants in the richest arrondissements, and 1 in 25 in the poorest. Of 100 infants born alive to the gentry of England (1844), there died 20; to the working classes, 50. In the aristocratic families of Germany there died in 5 years, 5.7 per cent.; among the poor of Berlin, 34.5 per cent. In Brussels, the mortality up to the 5th year was 6 per cent. in the families of capitalists, 33 per cent. amongst the tradesmen and professional people, and 54 per cent. amongst the workingmen and domestics. De Villiers found the mortality among the workingmen of Lyons 35 per cent, and in well-to-do families and agricultural districts 10 per cent.

Dr. Edward Jarvis has also noticed that "there are differences in the same city. In four of the districts of London the deaths under 5 were from 50 to 59; and in four other districts these rates were from 101 to 108 in 1000 living, of the same age Between these extremes, there were all intermediate grades of mortality in other districts. This is due in part to the different densities of the population, and in greater degree, to the differences in their domestic condition.

Similar differences were found in Boston, in 1870, the year of the census. The State Board of Health divided the city into twenty-four districts, according to their sanitary condition. Some

of these were low and wet, others were hilly and dry. Some were laid out with wide streets, open grounds, broad sidewalks, and were inhabited by the wealthy and comfortable classes. Others were filled with narrow streets, lanes and courts, and in these were crowded the dwellings and families of the poor. In the most favored districts, the deaths of infants under one, were 86, 100, 167, 171, in 1000 living at that age. In the unhealthy districts, the mortality was 359, 379, 409, and 486, in the same number of living infants.[37]

Dr. Marc D'Espine,[38] a Swiss writer of note on mortality, says: "Wealth and comfortable circumstances increase vitality and longevity. They raise the mean average of life. They lessen the mortality at all ages, and especially in infancy. But poverty and misery have the contrary effects."

According to Dr. Jarvis,[39] Mr. Chadwick, in his report on the sanitary condition of the laboring classes, page 161, says: that he found in fourteen cities and districts that the average age, at death, of 1,232 members of the most comfortable classes, including the children and infants, was 44 years. Of 5,035 persons in families less comfortably circumstanced, it was 27.47 years, and 20,385 persons in families of the poor, had enjoyed an average life of only 19.58 years. The average longevity in the most favored class exceeded that in the poorest by 125 per cent.

The difference was most in the deaths of the children. Compared with the number living under one year, the deaths were 20 per cent. in the last, 44.4 per cent. in the middle class, and 50 per cent. in the poorest.

In Massachusetts,[39] the proportion of deaths under two years in the families of farmers who owned their farms, was 11.94 per cent. of those of all ages, and in the laborers' families, the proportion was about double, or 23.5 per cent.

THE RELATIVE INFLUENCE OF CITY AND COUNTRY LIFE ON MALES AND FEMALES.

One of the most curious facts in connection with the relative longevity of the sexes is the influence of country and city life.

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[37] Dr. Jarvis: Report of State Board of Health of Massachussetts, 1871, p. 350

[38] Annales d'Hygiene, etc. t xxxvii. p. 325.

[39] Massachusetts State of Board of Health Rept. 1873. pp. 214–6.

Women are longer-lived in cities than in the country, while men are longer-lived in the country than in the city, as may be seen by the following :

Quetelet says that "the prosperity of the state ought to consist less in the multiplication than in the conservation of the individuals of which it is composed."

This authority finds the mortality in cities in Belgium, as compared with country districts, as 4 to 3.

After birth, according to Quetelet, the probabilities of life in Belgium are as follows :

	MALES.	FEMALES.
In cities	21 years.	28 years.
In country	24 "	27 "
At 5 years in cities	48 "	51 "
At 5 years in country	51 "	48 "

The probability of life reaches its maximum at five years.

In the population of Belgium there were 91.14 males to 100 females in the cities, and 99.42 males to 100 females in the country districts. Among the deaths there were 101.45 males to 100 females in cities, 99.20 males to 100 females in country districts. There is, therefore, an excess of more than 5 per cent. in the deaths of males over females in the cities, while the proportion of the sexes among the deaths in the country is scarcely different from that in the living, in the general population.

In the State of Rhode Island (1871) [City of Providence excluded], the average age of female decedents was 32.35 years, while the average age of this sex in the largest city (Providence) was 37.92 years.

I have stated in another place, that the number of still-births and the proportion of males in such cases, was greater in the country (the excess amounting to 9.3 per cent. in Belgium) than in the city. This is in some degree, due to the greater fecundity and larger number of male conceptions in the country districts over cities, but there are other causes to which the death of a larger proportion of the difference between the mortality from this cause in cities over the country is due; and principal among these I would suggest the delay and lessened facilities for calling in a practitioner, and less skilful obstetrical aid, afforded to the parturient

woman and her issue. Seeing that the proportion of males among still-births[40] is greater in the country, and as this condition of the child is usually attended with greater danger to the mother, we are not surprised to find greater mortality among women of a child-bearing age in the country than in the city. Whether the greater mortality of females of all ages in the country than in the city is principally due to this cause, I am not prepared to state, but am persuaded it is not.

In the State of Michigan (1870) there were 10,766 deaths, 150 or 1.3 per cent. of which were recorded as occurring among women in childbirth. In Philadelphia, for the 11 years ending 1870, there were but 93 deaths registered from this cause, or .053 per cent. of total mortality; of these, 1 was from 15 to 20 years of age; 43 were from 20 to 30; 41 were from 30 to 40; 8 were from 40 to 50; average age of all at death, 31.05 years.[41] In Rhode Island (1871) there were 27 deaths in childbirth, or .808 per cent. of the whole mortality; in Providence, the principal city in the State, only .567 per cent. of total mortality was from child-birth. According to the U. S. census for 1870, the deaths from childbirth, abortion and pueperral convulsions numbered 4,810, or .977 per cent. of total mortality. In 1860, 4,066 women died from these causes, or 1.033 per cent. of total mortality. In 1850, 3,117, or .965 per cent. of mortality. Quetelet has shown, in the following table on the influence of the sexes on the deaths at different ages, that from the 14th to the 50th year of age, or during the child-bearing period, in cities, 1,025 females die for every 1,000 males, while in the country, 1,215 females die to every 1,000 males, during the same period. In this same table, which we give below, in cities, from 50 to 100 years of age, 1,185

[40] The proportion of children still-born in the chief cities of Europe is 1 in every 22 births, the number being three times greater among illegitimate than legitimate children. In France, 1850, 1 in 37 were still-born; in Paris, 1 in 12.5; in Great Britain, 1 in 20; in Philadelphia, 1860–70, 1 in 21.7

From the larger proportion of still-births in cities over country districts, we might infer that citizens have a lower initial vitality or viability than those born in the country.

[41] From the author's paper on Deaths from Cancer and some of the Diseases peculiar to Women in Philadelphia, for the 11 years ending 1871. Journal of the Gynecological Society of Boston, Sept. 1872, pp. 201–2–3–4.

females die for every 1,000 males, while in the country, there are only 972 females to every 1,000 males attaining these ages. In Belgium, where the calculations were made, there are in the population of all ages, 1,098 females to 1,000 males in cities, and 1,006 females to 1,000 males in the country districts. There is scarcely a single city of any magnitude, in which the female population is not in excess of the male, though there be an excess of from 2 to 6 per cent. of males in the births. The proportion of females in the population of cities, as well as in the births, is nearly always greater than in the surrounding country. To this greater excess of females in cities has been attributed, among other causes, the larger proportion of illegitimate children in them than in the rural districts.

Table showing the influence of the sexes on the deaths at different ages, in Belgium.[42]

Ages.	Deaths of Females for one Male death.	
	In the Cities.	In the Country.
Still-Born,	0.75	0.59
From 0 to 1 mo.	0.75	0.73
" 1 to 3 "	0.73	0.84
" 2 to 3 "	0.82	0.83
" 3 to 6 "	0.79	0.86
" 6 to 12 "	0.94	0.97
" 1 to 2 yrs.	0.94	1.03
" 2 to 5 "	1.00	1.06
" 5 to 14 "	1.12	1.07
" 14 to 18 "	1.22	1.34
" 18 to 21 "	1.02	1.08
" 21 to 26 "	0.79	0.90
" 26 to 30 "	1.00	1.17
" 30 to 40 "	1.14	1.60
" 40 to 50 "	0.98	1.20
" 50 to 60 "	0.93	0.85
" 60 to 70 "	1.04	0.95
" 70 to 80 "	1.30	1.00
" 80 to 100 "	1.47	1.09
	.9857	.1008[43]

[42]Quetelet, Sur la Reproduct., Mortal., etc., 1832, p. 68

[43]101.45 males to 100 female decedents in cities; 99.20 to 100 in country.

MARRIAGES AND BIRTH-RATE.

The marriage rate in the 4 chief cities of England
1860-1 was..... 13.6 in 1000 Living
Birth-rate 1860–1..... .....35.5 " " "
Marriage-rate in the country..... ..... 7.0 " " "
Birth-rate " " .....31.5 " " "
In Manchester in 1860-1 the marriage-rate was..18.5 " " "
Hertfordshire " " " 5.8 " " "
Manchester '60-1 the average birth-rate was...37.5 " " "
Hertfordshire " " " 30.5 " " "

Hence, "while marriages in the city were nearly fourfold more numerous than in the country, the births there only exceed the latter by about one-sixth."[44]

In the Parish of Higham, Massachusetts, before 1789, according to Mr. William Barton there were 2,247 births, or 6¼ births to each marriage. Dr. Nathan Allen, believes that there are scarcely more than three births to each marriage in that State at the present time.

I have found[45] that there were 3.91 births to each marriage annually in Philadelphia 1861, while there were only 2.67 to each marriage in 1870, or an average of 2.6 legitimate births to each marriage annually, from 1861 to 1871. There were 101 persons to each marriage annually during this latter period.

Villermé of Paris, contended that the restrained fecundity in his city was due to the will of the inhabitants, rather than to actual physical degeneracy, but the greater proportion of males in births in country districts than in cities, and the greater mortality of the latter fully disproves this theory.

It is said that it is impossible for three successive generations to survive who have lived continuously in London; and it is certainly true that an uninterrupted residence of 200 years in a great city, by a family who intermarry with others not less old, must result in its extinction.

One of the noble families of England, recognizing this fact, has adopted the rule of marrying the sons to the rural gentry or

[44] John Edward Morgan, M. A. M. D. Oxon. "The Danger of Deterioration of Race from the too rapid increase of great cities." Transactions of the National [British] Association for the Promotion of Social Science, 1865, pp. 427-49.

[45] The Author's statistics of Philadelphia, etc., Penn Monthly, September, 1873, pp. 24, and papers of Social Science Association of Philadelphia.

others of inferior rank, that there may be greater certainty of perpetuating the name in the male line. Indeed, I am credibly informed that in England, so great is the desire for issue, that marriages are too frequently postponed until this is assured.

Wealthy citizens who desire to perpetuate their names in succeeding generations of sons, should marry vigorous, healthy country women.

I have shown in another paper, on the Effects of Nationality of Parents on Fecundity,[46] etc., that foreign mothers with American fathers, have a larger number of children than where the nationalities of the parents are reversed.

PROPORTION OF THE POPULATION LIVING IN CITIES.

In England during the last 150 years, the population of country districts has decreased, from having 74 per cent. of the entire population to having but 44 per cent.; the cities, therefore, have at the present time more than 56 per cent. of the entire population. From 1851 to 1861 towns and country districts increased at the rate of 3.9 per cent., while populous cities increased 17 per cent.

In the United States there were in 1860, 102 towns with a population of 10,000 each, 6 between 11,000 and 12,000; 4 between 12,000 and 13,000; 12 between 13,000 and 14,000; 7 between 14,000 and 15,000; 3 between 15,000 and 16,000; 5 between 16,000 and 17,000; 3 between 17,000 and 18,000; 3 between 18,000 and 19,000; 2 between 19,000 and 20,000; 19 between 20,000 and 30,000; 4 between 30,000 and 40,000; 6 between 40,000 and 50,000; 2 between 50,000 and 60,000; 4 between 60,000 and 75,000; 1 between 75,000 and 100,000; 1 between 100,000 and 150,000; 4 between 150,000 and 200,000; 2 between 200,000 and 500,000; 1 above 500,000, and 1 above 800,000; in all 4,763,717.

In 1870 there was 1 city above 900,000; 1 above 600,000; 2 above 300,000; 4 above 200,000; 2 above 150,000; 4 above 100,000; 4 above 75,000; 7 above 50,000; 7 above 40,000; 12 above 30,000; 6 above 20,000; in all, 50 cities having each a population above 20,000, making a total of 5,074,849 inhabitants, or about one-seventh of the entire population of the United States live in cities of above 20,000 inhabitants.

[46] Philadelphia Medical Times, December, 1873.

50 largest cities.....1870.....5,074,849
50 largest cities.....1860.....3,946,855

Increase of (22.2 per cent.).....1,127,994

At the present time fully 15 per cent. of our population live in fifty cities, having from 20,000 to 1,000,000 inhabitants; or on an average of 101,496 persons to each.

Dr. Price calculated that London contained in the eighteenth century (1758) 1-9 or 11.1 per cent. of all the people of England, and consumed from seven to ten thousand persons annually, who removed into it from the country, without increasing it

Liverpool, Manchester, Bristol, Leeds, Sheffield, Hull, having a total population of 883,162 persons, had but 3,909 births in excess of deaths. Nine towns having a population of from thirteen to thirty-seven thousand, or a total of 227,870, had an excess of births amounting to 3,316, or nearly as many from about one-fourth the number of persons.

Drowitch, with a population of 19,237, had an excess of 288, while Liverpool with a population of 269,720 had only 152.

It is worth while for us to inquire whether there is any necessity for such a large proportion of those who do business in cities to live in them.

However much this may have been a necessity before the introduction of railroads, no such excuse can be offered at the present day; for every city, worthy of the name, has innumerable facilities for a residence in the salubrious air and quiet retreat of the country; and it is a matter of regret in view of the facts here detailed, that a much larger number do not avail themselves of the splendid opportunities afforded in this direction. Particularly is this true of those who are raising families of children, among whom the mortality is so great in large cities. Notwithstanding this excessive mortality among children in cities, cutting off all the weakest, yet a far larger proportion, if, indeed, not nearly all of our truly great men of the three learned professions—of arts and sciences, and statesmen, from the presidents down—owe their superior excellence to their rural origin.[47]

[47] In answer to a letter of inquiry on this point from Dr. S. Austin Allibone, the distinguished author of "The Dictionary of English Authors"—he says: "though I do not venture an opinion," yet "*a priori*, I should think your theory correct."

In another place[48] I have said that *life is but developmental death*, and one reason citizens are shorter lived,—they live faster, develop more rapidly, and die earlier from this cause. It is well known that children reach puberty sooner in cities than in the country, and what is this but the evidence of the completion of one of the stages of development,—*life is therefore developmental death.* Life in cities is shortened then, not only by disease, but by the circumstances connected with civilization, which favor and hurry on development, which finally culminates in death.

The reason of the excessive mortality among the poor, would appear to be due to improper preparation of, and scanty and inferior food, in addition to the evils of intemperance, inheritance, vitiated air, and over-crowding so commonly urged.

I am more than ever convinced of this since hearing Dr. Jarvis' excellent paper[49] on the importance of the proper preparation of food, and its influence on health, happiness, and longevity.

I cannot pass this point without also calling attention to Dr. A. C. Hamlin's (of Bangor, Me.) paper on "Alimentation Considered in its Relation to the Progress and Prosperity of the Nation."[50]

In 1749 the academy of Dijon proposed this question as a theme for their prize essay: *Has the restoration of the sciences contributed to purify or to corrupt manners?* The famous Rousseau was one of the fourteen competitors, and in 1750 his discussion of the academic theme received the prize. This was his first entry on the field of literature and speculation, and laid the foundation of his far-famed future.

John Morely[51] says, "people have sometimes held up their hands at the amazing originality of the idea that perhaps the sciences and the arts have not purified manners. This sentiment is surely exaggerated, if we reflect first that it occurred to the academicians

[48] "A new Theory concerning the cause of Enlargement of the Prostate Body (Gland); ascribing it to developmental causes. Philadelphia Medical Times, January, 1874.

[49] "The Power of the Housekeeper over, and Responsibility for, the Health of the Family," Transact. of American Public Health Assoc., N. Y., 1874. (session of Nov. 11, 12, and 13, 1873.)

[50] Ibid.

[51] Rousseau, By John Morely, 2 vols, Lond. 1873. vol. I. p. 132.

of Dijon as a question for discussion, and second that, if you are asked whether a given result has or has not followed from certain circumstances, the mere form of the question suggests no quite as readily as yes."

"Egypt, once so mighty, becomes the mother of philosophy and the fine arts, and soon after comes its conquest by Cambyses, by Greeks,[52] by Romans, by Arabs, finally by Turks. Greece twice conquered Asia, once before Troy, once in its own homes; then came in the fatal sequence the progress of the arts, the dissolution of manners, and the yoke of the Macedonian. Rome, founded by a shepherd, and raised to glory by husbandmen, began to degenerate with Ennius, and the eve of her ruin was the day when she gave a citizen the deadly title of arbiter of good taste. China, where letters carry men to the highest dignities of the State, could not be preserved by all her literature from the conquering power of the rude Tartar. On the other hand, the Persians, Scythians, Germans, remain in history as types of simplicity, innocence and virtue." These are the words of Rousseau, in his reply to the King of Poland; and were he living to-day, he might safely say the same of France, the arbiter of good taste for the whole world, the most highly civilized people of the present time, physically and morally the weakest of nations, having a smaller population at the taking of the last census, than in the preceding.

History repeats itself, particularly where new nations ape the arts and luxuries of the old.

Luxury makes people indolent, pampers vices, leads to intemperance and debauchery, with all their attendant evils. It saps the military virtues by which nations preserve their power and independence, and renders immorality shameless.

Rousseau, in speaking of man, says: "This admirable creature, with foes on every side, is forced to be constantly on the alert, and hence always in full possession of all his faculties, unlike civilized man, whose native force is enfeebled by the mechanical protections with which he has surrounded himself. He is not afraid of the wild beasts around him, for experience has taught

[52] Bougainville, a brother of the navigator, said in 1760: "Greece is the universe in small, and the history of Greece is an excellent epitome of universal history.—Out of Egger's Hellénisme en France, ii, 272.

him that he is their master. His health is better than the health of us who live in a time when excess of idleness in some, excess of toil in others, the ease of irritating and satisfying our sensuality and our appetites, the heating and over-abundant diet of the rich, the bad food of the poor, the orgies, the excesses of every kind, the immoderate transport of every passion, the fatigue and strain of spirit—when all these things have inflicted more disorders upon us than the vaunted art of medicine h s been able to keep pace with, since we quitted the simple, uniform, and solitary manner of life prescribed to us by nature."

Voltaire, on acknowledging the receipt of the second discourse of Rousseau, which was a kind of supplement to the first, said with his usual shrewd pleasantry: "I have received your new book against the human race, and thank you for it. Never was such cleverness used in the design of making us all stupid. One longs in reading your book to walk on all fours. But as I have lost that habit for more than sixty years, I feel unhappily the impossibility of resuming it. Nor can I embark in search of the savages of Canada, because the maladies to which I am condemned render a European surgeon necessary to me; because war is going on in those regions, and because the example of our actions has made the savages nearly as bad as ourselves; so I content myself with being a peaceable savage in the solitude which I have chosen near your native place, where you ought to be too." In conclusion, he says: "I am informed that your health is bad; you ought to come to set it up again in your native air, to enjoy freedom, to drink with me the milk of our cows, and browse our grass."

While I deny the anticipated results claimed by progressive transcendentalists, I equally disclaim all sympathy with the worst features of the iconoclastic natural perfectionists. And while it cannot be successfully denied, that advanced civilization and the congregation of immense numbers of people in closely crowded cities increases vice, immorality, and crime,—impairs health, shortens the duration of human life, and hastens the final extinction of the race, I cannot see how we could easily do without them, and should be the last one to attempt to devise plans to dispense with the comforts, the luxuries, the elegancies of city life. All of us willingly subscribe to the old motto—*Dum vivimus, vivamus*—while we live, let us live.

It is said that the deaths exceeded the births in London, by 10,000 annually, and this difference would be much greater were it not for the hundreds of thousands of strangers who annually take up their residence in this great metropolis. If this supply of sturdy strangers were cut off, London would rapidly decline in population; and indeed the same might with equal truth be said of any large city; none of them could keep up their population without recruits from outside.

If *all* the inhabitants of the globe were living in cities of the magnitude of London, and subjected to the same influences connected with the movement of population, the whole human race would become extinct in a century or two. And if you will imagine for a moment the entire human race living in a single city, little more than a century would suffice to annihilate the race.

Rome was not built in a day, but she grew apace and waxed strong, until the millions of souls encircled within her strong walls were only out-numbered by the broad acres comprehended within her empire. At one time this single city sat upon her seven hills, and ruled the world. And what became of this great empire, what caused her decay, decline, and fall? She was swallowed up in the *city* of Rome—too much civilization centered in a single city. The people were too much occupied with inconsiderable trifles—effeminancy and brutality sapped her strength until she became a helpless victim to every foe. Prof. Seeley in his lecture on Roman Imperialism says that Rome fell for want of men; the human harvest was bad,—it was a *physical*, not a moral degeneracy.

Thus it was with the city, founded on a myth, which rapidly rose to fame and good fortune, once the strength and fear of the whole world, and she fell without an adequate history, her language even dead, save as we hear it in the derived romance tongues; but thus it may be with any nation too much given to city worship. As a very recent example of this I need only name France—Paris had sapped her vitality by too much dilettante imperialism, until she became the easy prey of the sturdy German race. Too much civilization in Paris, the very centre of modern civilization, killed France.

Notwithstanding the fact that the mean average duration of human life was calculated by Domitius Ulpianus, Prime Minister to Alexander Severus (year of Rome, 975; A. D. 222 to 235) to be

thirty years, yet the mean average age at death in Philadelphia for the eleven years ending 1871, was less than twenty-four years, and in New York city still less. And these cities are both together not equal to Rome in numbers, and only 200 years old. Who can tell what may be their condition in their 975th year? Does this indicate that they will equal Rome? Still, commercial interests rule to some extent the rise and fall of cities.

Large towns have been emphatically called the *graves of humanity*, and certainly they are not favorable to health and longevity. Indeed they might be very properly compared to the fiery furnace, into which the condemned children were cast.

Those who would live to a good old age, and hand their names down through a numerous posterity in children endowed with rich mental gifts, should avoid the dangers of the great city and choose the country life.

It cannot be denied that cities are absolutely necessary for the fostering of the arts, the sciences, the elegancies of life, yet when they are so dearly bought, one cannot help the reflection, as he looks with wonder and admiration at these productions, of how many precious human lives they cost—of how many premature deaths—of how many souls are sacrificed on the altar of the arts.

The tender mother who has reared the helpless babe in the pure and quiet rural home, and watched it learn to walk and tell its name,—studied the growth of character and development of feature, until budding into healthy innocent manhood or womanhood—if she allow her offspring to choose the city as the field of their fortunes and fancies—with its sins and its syrens, its vices, and its vanities, its ills and its iniquities, its pitiless poverty—though mingled with elegance and luxury, with indolence and ease, its follies and frivolities, so attractive to us all,—I say if she loose him to all these without her guiding care, and have but little left, as is too often the case, but a misspent life—a wretched wreck, or an untimely death—well may she exclaim with the Roman poet—*Pericula mille saevae urbis.*

ANNUAL REPORT OF THE PHILADELPHIA SOCIAL SCIENCE ASSOCIATION.

THE Association held its usual public meetings during 1873, when papers were read by Cyrus Elder on the Tax System of Pennsylvania; by A. Sydney Biddle, on the work of the Constitutional Convention; and a paper by S. Dana Horton, of Cincinnati, was printed on Proportional Representation; all of these subjects having immediate relation to the convention called to amend the constitution of Pennsylvania. A paper by Dr. Ray, entitled "What shall Philadelphia do with its Paupers?" was also read at a regular public meeting of the Association, and the discussion that followed was printed with this paper. The useful results of these meetings may be traced in the action of the Legislature on questions of taxation, of the Constitutional Convention in various matters introduced into the new constitution, and in the City Councils in a negative but very demonstrative way, in the fact that at the last election in that body for a guardian of the poor, Dr. Ray, in spite of his distinguished reputation as a man of scientific attainments, and of his free devotion of time and labor to the cause of the poor, and especially of the lunatics in the Philadelphia almshouse, was not re-elected. His paper before this association no doubt contributed largely to such a result, and if it was the reward for speaking the truth, the City Councils have certainly shown themselves properly sensitive and alive to their faults.

During the year the Executive Committee has received and accepted the resignations of Mr. C. H. Hutchinson and Mr. Guilford Smith, and elected President Allen, of Girard College, to fill one of the vacancies. The services of Mr. Guilford Smith to the association were always marked by great zeal and active intelligence, and in leaving it, owing to his removal from the city, he gave a further proof of his interest by offering a considerable collection of books.

Mr. Alfred Cope has sent to the association for the use of the members, the journal of the French Economical Society, but unfortunately this association, although gratefully accepting such donations for its library, has as yet no permanent abiding place,

and no room either for the proper storage or the convenient use of its books and papers. Until this is secured it can neither make nor preserve any collection of the numerous works issued on subjects of interest and importance in the broad field of social science. This year, in accordance with the suggestions of the association, efforts were made to secure an earlier beginning of its operations, and already two papers have been issued and distributed to the members, one relating to the vital statistics of the city of Philadelphia, by Dr. John Stockton Hough, and the other on the value of original scientific research, by Dr. W. S. W. Ruschenberger, and a paper on the relative health of country life and city life will be read by Dr. Hough, at the annual meeting. The other departments of the association will, it is believed, provide papers within the scope of their branches.

This association was represented at the eighth general meeting of the American Social Science Association, which was held in Boston, in May of this year; and its report makes a very fair share of contribution to the work done by the parent association and its various branches, as exhibited in the fifth volume of transactions recently issued. The Boston office has asked and obtained the aid of this association, in reference to the effort of Miss Mary Carpenter, of England, to advocate Prison Reform; and in relation to the future course of the American Association; no contribution in money has been made to their expenses; and indeed the statement of the treasurer of this association herewith appended, shows that the funds on hand are barely sufficient to provide for the very moderate outlay made in the effort to maintain some degree of activity and usefulness in this city. The invitation of the Penn Monthly Association, to share their rooms, No. 506 Walnut street, third story, is a very good opportunity for securing to the Philadelphia Social Science Association, a local habitation, a permanent resting-place for its officers, its meetings, and its collections; already the papers, etc. have accumulated to an extent that is a serious embarrassment to the secretary, and offers of books have to be refused, as there is no place in which they can be stored. To secure these quarters, even at the moderate sum named by the officers of the Penn Monthly, it will be necessary to secure a considerable addition to the present income of the association. There are one hundred and eighty-seven members on

its roll; of these a number have been lost by death, removal or resignation, and the treasurer's report will show the total received and disbursed during the year. By sharing the rooms at 506 Walnut street, and by securing the services of the gentlemen (connected with the Penn Monthly) permanently located there, the association would have a representative constantly there, and at a less expense than that incurred for the public meetings of the Social Science Association; its respective departments could carry on their work to greater profit and advantage than has hitherto been possible. To do any real good, the sub-committees must have a place of meeting, must meet regularly and frequently, and must secure that co-operation which comes from persons specially interested and instructed in the various subjects within their province, and not from ordinary public meetings. To carry out these suggestions, the executive committee ask the authority of the association, and invite the assistance of all who are interested in its objects and operations. They recommend the election of one person as secretary and treasurer, so that the executive work of the association may be united for its prompt dispatch. They have nominated for this place, Mr. Henry Galbraith Ward, whose name has been recommended by both the secretary and treasurer of the association.

The Report of the Treasurer shows for 1873 receipts from 108 members	$540 00
Balance from 1872	101 84
	$641 84
Expenses	582 07
Balance, Dec. 11, 1873	$ 59 77

The Fifth Volume of the Transactions of the American Social Science Association, containing the Papers read at the Eighth General Meeting held in Boston, and much other valuable information, is now on sale at Porter & Coates's, at $1.25 per copy; the annual subscription to the American Association is also $5.00.

Papers by Professor Lesley and the Hon. Thomas Cochran, the former on a new Geological Survey of the State, the latter on Tax Valuations; by Professor Frazer, on Mining; and by Mr. Whitney, on Education, are in preparation; and the co-opera-

tion of the members of the association can secure other valuable papers quite within the scope of its plan. Relying upon this the Executive Committee anticipate renewed interest in the work, and increased strength in the members of the Philadelphia Social Science Association.

BY ORDER OF THE EXECUTIVE COMMITTEE.

At the annual meeting the foregoing report was accepted, and in accordance with its suggestions, resolutions were adopted providing for an **Office of the PHILADELPHIA SOCIAL SCIENCE ASSOCIATION at 506 Walnut Street.**

Officers for 1874—President, Henry C. Lea; Executive Committee, Department of Public Health, Dr. Ray, Dr. Ruschenberger, Dr. Goodman, Dr. Ludlow, Mr. Bloomfield H. Moore; Department of Education, Dr. Stillé, Dr. Goodwin, President Allen, Lorin Blodget, Prof. Conrad; Department of Finance, Mr. Joseph Wharton, Mr. John Welsh, Mr. Wm. C. Ingham, Mr. E. A. Rollins, Mr. Clarence H. Clark; Department of Mining and Manufactures, Mr. Eckley B. Coxe, Mr. J. P. Lesley, Mr. J. S. Whitney, Mr. T. S. Emery, Mr. Joseph D. Potts; Department of Jurisprudence, Mr. E. Spencer Miller, Mr. R. L. Ashhurst, Mr. Samuel Dickson, Mr. W. Heyward Drayton, Mr. R. C. McMurtrie, Mr. J. Vaughan Darling, Mr. J. G. Rosengarten.

Secretary and Treasurer, Henry Galbraith Ward, 506 Walnut street.

The annual subscription is Five Dollars payable in advance.